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Studies on the Rocky Mountain flora — XX

PER AXEL RYDBERG

Phacelia nervosa sp. nov.

Phacelia alpina Rydb. Fl. Colo. 283, in part, as to the Colorado specimens. 1906.

Perennial, with a short rootstock; stems decumbent at the base, 1–3 dm. high, more or less hirsute and with short grayish hairs intermixed; lower leaves with petioles 2–7 cm. long, simple or with a pair of smaller lobes on the petioles; blades lanceolate, 2–5 cm. long, acute, hirsute on both sides, veins rather strong beneath; upper leaves subsessile; inflorescence soon open; the racemes peduncled, in fruit 4–9 cm. long; calyx more or less tinged with purple, about as long as the corolla; sepals narrowly linear, acute, hirsute, with a strong midrib; corolla white or nearly so, pubescent, about 5 mm. long; filaments about twice as long as the corolla, slightly bearded at the base with short hairs; seeds lance-ovoid, 2.5 mm. long, brown, faveolate.

This was mistaken for *Phacelia alpina*, which it resembles in habit, but it differs in the longer and more open racemes, the longer calyx-lobes, which about equal the corolla and have a strong midrib, in the almost glabrous filaments, in the whitish instead of lilac corolla, and in the more acute seeds. It grows on high mountains at an altitude of 3000 m. or more.

COLORADO: Silver Plume, Aug. 24, 1895, *P. A. Rydberg* (type, in herb. N. Y. Bot. Gard.); same locality and date, *C. L. Shear 3253;* Mt. Harvard, Aug. 17, 1896, *C. L. Shear 3790;* 1896, *F. E. Clements 408;* near Ironton, San Juan County, July, 1899, *C. C. Curtis.*

Phacelia Burkei sp. nov.

Perennial, with a taproot; stems 2–3 dm. high, canescent; basal leaves 3–10 cm. long, petioled; blades lanceolate, entire, strongly veined, densely white-canescent on both sides; inflorescence branched, open; racemes elongated, 2–8 cm. long; calyx canescent and hispid-ciliate; lobes narrowly linear, obtuse, two thirds as long as the corolla, with a rather strong midvein; corolla pubescent, white, 4–5 mm. long; stamens about twice as long as the corolla, villous-bearded; seeds 4, dark chestnut-brown, 2 mm. long, puberulent, ellipsoid, strongly but finely faveolate.

This resembles *P. leucophylla* Torrey in general habit, but differs in the narrow and more strongly ribbed calyx-lobes, the smaller and white corolla, and the more finely faveolate seeds.

IDAHO: Snake Country, *Burke* (type, in herb. Columbia Univ.).

WASHINGTON: Collector not given.

Phacelia leptosepala sp. nov.

Perennial, with a taproot and a more or less cespitose rootstock; stems ascending, hirsute, 1–3 dm. high; leaves usually simple, hirsute on both sides, 5–10 cm. long, oblanceolate or elliptic; the lower ones petioled; inflorescence with several short branches; calyx hirsute; lobes narrowly linear, hirsute, nearly as long as the corolla, acute; corolla white, glabrous or nearly so, 5 mm. long; filaments about twice as long, sparingly villous-bearded.

This species is probably most nearly related to *Phacelia nemoralis* Greene, but differs in the low, slender, ascending stems, the cespitose habit, the longer and narrower, acute sepals, and the less bearded stamens. It somewhat resembles *P. alpina* in habit, but differs in the narrow calyx-lobes almost equaling the white corolla and in the hirsute pubescence, which consists only of coarse hairs.

BRITISH COLUMBIA: Vermilion Lake, Aug. 5, 1905, *Edith M. Farr 1013* (type, in herb. N. Y. Bot. Gard.); Avalanche débris above Lardo, Selkirk Mountains, June 16, 1905, *Shaw 695*.

MONTANA: Mount MacDougal, 1901, *Umbach 139*; Sperry Glacier, 1903, *Umbach 826*.

Lappula leucotricha sp. nov.

Annual; stem 2–4 dm. high, slender, branched above, densely pilose, especially below, with long white hairs; basal leaves oblanceolate, 2–4 cm. long, softly pilose on both sides; stem-leaves linear or oblong, numerous; bracts linear-lanceolate; sepals linear, 2.5–3 mm. long, in fruit 4–5 mm.; corolla white, 3–3.5 mm. long, 3 mm. broad; fruit erect, about 5 mm. wide; nutlets about 2.5 mm. long, light, almost straw-colored; marginal prickles in one row, not united into a disk, but broadened below and flat, scarcely grooved; back strongly muricate.

This species is related to *Lappula occidentalis* (S. Wats.) Greene, but differs in the soft white spreading pubescence, the white flowers, the smaller fruit with broader, flattened prickles. In *L. occidentalis* the prickles are only slightly broadened below, not flattened, and strongly grooved on the inside.

ARIZONA: Tucson, Apr. 20, 1894, *Toumey* (type, in herb. N. Y. Bot. Gard.); vicinity of Flagstaff, June 16, 1898, *MacDougal 122;* Clifton, Apr., 1881, *Rusby 281.*

UTAH: St. George, 1877, *Palmer 359.*

Eremocarya muricata sp. nov.

Annual; stem slender, branched throughout with ascending branches, strigose; leaves linear, 2–5 mm. long, hispidulous, the hairs with pustulate bases; racemes short and dense, usually less than 1 cm. long; bracts oblong, 1–2 mm. long; sepals linear, obtuse, 1.5 mm. long, hispidulous on the margins and midvein; corolla white, 1 mm. long; limb scarcely 0.5 mm. wide; nutlets lanceolate in outline, long-acuminate, dull, finely muricate.

This species is somewhat intermediate between *Eremocarya micrantha* and *E. lepida.* It resembles the former most in habit, but differs in the more ascending branches, the shorter leaves, and especially in the narrower, muriculate and dull, instead of smooth and shining, nutlets. The latter resemble much those of *E. lepida*, but are narrower and more tapering upwards. *E. lepida* has much broader leaves and larger flowers.

UTAH: Southern Utah, 1874, *Parry 164* (type, in herb. Columbia Univ.).

ARIZONA: Near Camp Lowell, Apr. 13, 1881, *Pringle;* Prescott, 1883, *Rusby 745;* Tucson Mountains, Apr. 12, 1903, *Thornber;* Plains of Tucson, Apr., 1881, *Lemmon 203;* Mesa, near Tucson, May 14, 1883, *Pringle;* Apr. 25, 1906, *Shear 4235;* Tucson, Apr. 3, 1894, *Toumey.*

Greeneocharis circumscissa (H. & A.) Rydb. comb. nov.

Lithospermum (?) circumscissum H. & A. Bot. Beech. 370. 1840.

Piptocalyx circumscissus Torr.; S. Wats. Bot. King's Exp. 240. 1871.

Eritrichium circumscissum A. Gray, Proc. Am. Acad. **10**: 58. 1874.

Krynitzkia circumscissa A. Gray, Proc. Am. Acad. **20**: 275. 1885.

Wheelerella circumscisssa Grant, Bull. So. Calif. Acad. Sci. **5**: 28. 1906.

Piptocalyx Torr. of 1871 is antedated by *Piptocalyx* Oliver of 1870 and therefore *Greeneocharis* Gürke & Harms was proposed instead of the former in the appendix to the Register of the Engler & Prantl, Natürlichen Pflanzenfamilien.* This name was properly published, although no binomials were used. There was therefore no need of substituting another generic name *Wheelerella* as was done by Grant. The fact that the etymology is not as good as it might be does not at all invalidate *Greeneocharis*. Reluctantly the writer is forced to add another binomial to the already too many names of this plant.

Oreocarya spicata sp. nov.

Perennial, with a taproot; stem solitary and simple, virgate, hispid throughout; basal leaves numerous, spatulate, 2–5 cm. long, hispid on both sides; the hairs usually with pustulate bases; stem-leaves linear-oblanceolate or linear, 4–9 cm. long, those of the inflorescence many times longer than the short flower clusters; inflorescence elongated, spike-like; calyx hispid, 4–5 mm. long, lobes oblong-lanceolate, obtuse; corolla 6 mm. long, 4 mm. broad; nutlets 4 mm. long, ovate in outline, scarcely keeled on the back, white and shining, smooth on the back, margins merely acute.

This species is closely related to *Oreocarya virgata*, from which it differs in the light-colored, smooth nutlets, the smaller corolla-limbs, shorter and broader basal leaves. The nutlets in *O. virgata* are more acuminate, brown or brownish gray, with a more distinct ridge on the back, more or less transversely rugose and tubercled on the back, and with sharper margins.

COLORADO: Artist's Glen, Aug. 1, 1901, *Clements 102* (type, in herb. N. Y. Bot. Gard.); North Cheyenne Cañon, July 14, 1896, *Ernst A. Bessey*; "Colorado," *G. W. Hulse.*

Cryptanthe leptophylla sp. nov.

Annual; stem simple, slender, erect, strigose throughout, 1.5–3 dm. high; leaves narrowly linear, 1–3 cm. long, 0.5–1.5 mm. broad, strigose; inflorescence cymose, short, at the end of the stem, and on a few small branches; calyx-lobes linear-filiform,

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* Gesamtregister 462. 1899.

3–4 mm. long, in fruit 8–10 mm. long, white-silky with long spreading hairs; corolla minute, shorter than the calyx; limb hardly 0.5 mm. wide; nutlets 3 mm. long, narrowly lanceolate, long-acuminate, strongly muricate; groove closed, 2-forked at the base.

The type sheet of this species was determined by Dr. Watson as *Eritrichium barbigerum*. It is abundantly distinct from *Cryptanthe barbigera*, however, the main distinctions being the narrow strigose leaves, the strigose instead of hirsute or hispid stem, the minute corollas, and the narrower and differently shaped nutlets.

UTAH: St. George, 1877, *E. Palmer 350* (type, in herb. Columbia Univ.).

Cryptanthe confusa sp. nov.

Cryptanthe affinis Rydb. Mem. N. Y. Bot. Gard. **1**: 330, in part. 1900.

Annual; stem rather stout, hispid, branched; leaves oblong or oblong-oblanceolate, 2–5 cm. long, 3–8 mm. wide, coarsely hirsute; spikes at first very short, subcapitate, in age 4–5 cm. long; calyx-lobes 2 mm. long, lance-subulate, hispid, in fruit 3–4 mm. long; corolla about 3 mm. long; limb scarcely 1 mm. wide; nutlets ovate, 2 mm. long, light-colored, smooth, shining, thin-walled, attached by the lower half or two thirds; groove closed and simple to the base.

This species is related to *Cryptanthe affinis* and *C. leiocarpa*, but differs from both in the broader leaves. The nutlets are most like those of the former but the attachment extends somewhat higher.

WYOMING: Upper Madison Cañon, Yellowstone Park, Aug. 3, 1897, *Rydberg & Bessey 4884* (type, in herb. N. Y. Bot. Gard.).

IDAHO: Beaver Cañon, June 27, 1895, *Rydberg*; Latah County, July 6, 1894, *Piper 1940*.

UTAH: Central Utah, 1875, *Parry 67* (?).

Cryptanthe grandiflora sp. nov.

Annual; stem branched, 2–4 dm. high, hirsute with white hairs; leaves broadly linear, lanceolate, or oblong, 3–5 cm. long, 5–10 mm. wide, hirsute, the hairs with pustulate bases; spikes lax, in fruit often 1 dm. long; calyx-lobes 3 mm. long, in fruit 5 mm., very hispid; corolla white, 4–5 mm. long; limb 5–6 mm. wide; nutlets ovate, 2.5 mm. long, shining, smooth, rather thin-walled; groove narrow, 2-forked at the base.

This species has been variously named *Cryptanthe leiocarpa*, *C. ambigua*, and *C. Torreyana.* It differs from the first in the 2-forked groove, from the second in the smooth nutlets, and from all in the large corolla. It is most related to *C. Torreyana*, having somewhat similar nutlets, but is easily distinguished from it by the large flowers and broad leaves. It may be the same as the large-flowered form of *C. Torreyana calycosa* referred to by Piper;* but it does not have the elongated calyx-lobes of that species and has three to four times as broad corolla.

IDAHO: Valley of Clearwater River, April 23, 1892, *Sandberg, MacDougal & Heller 10* (type, in herb. N. Y. Bot. Gard.); about Lewiston, April 30, 1896, *A. A. & E. Gertrude Heller 2998.*

WASHINGTON: Wawawai, May, 1897, *Elmer 775;* near Montesano, June 10, 1898, *A. A. & E. Gertrude Heller 3924.*

Mertensia pallida sp. nov.

Perennial, with a thick rootstock; stem glabrous, very pale, 5–8 dm. high, leafy; lower leaves oblanceolate, the upper narrowly lanceolate, 5–8 cm. long, glabrous or minutely muriculate, ciliolate on the margins, pale; inflorescence narrowly paniculate; pedicels usually strigulose or sometimes the hairs represented only by the somewhat pustulate bases; calyx-lobes oblong, about 1 mm. long, obtuse, ciliate on the margin; corolla about 1 cm. long, the tube about equaling the limb; filaments about 1 mm. long, dilated and at the apex broader than the anthers, which are about 2 mm. long.

This is related to *Mertensia ciliata* but differs in the paler narrower leaves, the smaller corolla, and the usually strigulose pedicels.

MONTANA: Lima, June 28, 1895, *Rydberg 2777* (type, in herb. N. Y. Bot. Gard.); June 30, 1895, *Shear 3395;* Spanish Basin, July 11, 1896, *Flodman 751.*

Mertensia Leonardi sp. nov.

Perennial, with thick rootstock; stem erect, glabrous, pale, 5–10 dm. high, leafy; leaves thin, glabrous and smooth beneath, more or less pustulate-muricate above, and ciliolate on the margins; the lower short-petioled; blades oblanceolate, 4–7 cm. long; the upper sessile, lanceolate or ovate, 5–15 cm. long; inflorescence much branched; pedicels sparingly pustulate; calyx-lobes lanceolate, 4 mm. long, twice as long as the calyx-tube, ciliolate on the margins; corolla-tube 6–7 mm. long; limb 8–10 mm. long, 7–8 mm. wide.

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* Contr. U. S. Nat. Herb. 11: 484. 1906.

This is related to *Mertensia arizonica, M. intermedia*, and *M. stenoloba*. From the former it differs in the long calyx-lobes and the short calyx-tube and from the latter two in the long and ample limb of the corolla. It is a larger plant than any of the three and often reaches a height of 1 m.

UTAH: Mill Creek Cañon, July 31, 1884, *F. E. Leonard* (type, in herb. N. Y. Bot. Gard.).

Mertensia humilis sp. nov.

Perennial, with a woody tap-root and cespitose caudex; stem 1–2 dm. high, ascending or decumbent, glabrous; basal leaves petioled, 3–8 cm. long; blades thick, elliptic to ovate, glabrous beneath, pustulate-muricate above, ciliolate on the margins, stem-leaves sessile, elliptic or ovate, rarely oblong, 2–4 cm. long; pedicels with scattered large pustules; calyx-lobes lanceolate, 2–3 mm. long, hispid-ciliolate on the margins; corolla 7–8 mm. long; tube slightly shorter than the limb; stamens inserted in the tube of the corolla; filaments short and narrow.

The specimens referred to this species were all named *Mertensia alpina* by the collectors. A few years ago the present writer regarded them as representing the typical *M. alpina* and redescribed the true *M. alpina* (Torr.) Don under the name *M. obtusiloba*. A reëxamination of James's plant (type of *M. alpina*) has convinced me of the identity of *M. alpina* and *M. obtusiloba*. *M. humilis* combines the corolla and stamens of *M. alpina* with the leaf-surface, pedicels, and calyx of *M. lanceolata*. In habit it is intermediate between the two.

WYOMING: Sand Creek, Albany Co., June 2, 1900, *A. Nelson 7043*; (type, in herb. N. Y. Bot. Gard.); Laramie Hills, May 16, 1894, *A. Nelson 33*; May 14, 1900, *E. Nelson 184*.

Scutellaria veronicifolia sp. nov.

Perennial, with creeping rootstock; stem 2–4 dm. high, finely puberulent, more or less purplish; leaves below the inflorescence ovate, obtuse, coarsely crenate, 1–4 cm. long, minutely puberulent or glabrate, short-petioled; those of the inflorescence and branches oblong and entire or nearly so; pedicels 3–5 mm. long; calyx finely pubescent, 6 mm. long; corolla 25–30 cm. long, its tube rather abruptly widening, 7–8 mm. broad at the throat.

This species is related to *Scutellaria angustifolia* and *S. antirrhinoides*, but differs from both in the broader corolla-tube. From the former it differs also in the broader and usually toothed stem-leaves and from the latter in the large flowers.

IDAHO: *Sandberg, MacDougal, & Heller 115* (type, in herb. N. Y. Bot. Gard.).

CALIFORNIA: Mokelumne Hill, 1853–4, *Bigelow* (Whipple Exp.); 1846, *Fremont LIII.*

Stachys asperrima sp. nov.

Perennial, with a rootstock; stem stout, 4–6 dm. high, coarsely hispid on the angles with spreading or reflexed hairs; leaves nearly sessile, oblong, elliptic, or oblong-lanceolate, 5–8 cm. long, truncate or rounded at the base, coarsely crenate, hispid above, hispid on the veins and also puberulent beneath; spike 1–2 dm. long; calyx densely hispid and somewhat glandular; lobes lance-subulate, spinulose-tipped; corolla purplish, 10–12 mm. long, puberulent, and more or less hirsute on the lips outside.

This species belongs to the *Stachys palustris* group, but little resembles that species in general habit. In leaf-form, pubescence, and general habit, it reminds one of *S. arenicola* Britton, but the leaves are crenate instead of serrate and the pubescence is coarser. It resembles also *S. rivularis* Heller, but the pubescence is coarser and the calyx-lobes are lance-subulate instead of lanceolate.

UTAH: Towards Jordan City, July 7, 1884, *F. E. Leonard 138* (type, in herb. N. Y. Bot. Gard.).

Stachys Leibergii sp. nov.

Perennial, with a horizontal rootstock; stem 3–6 dm. high, sharply angled, glabrous below, softly hirsute above; leaves sessile, lanceolate, acute, 4–8 cm. long, crenate-dentate, pubescent on both sides with short appressed hairs or in age glabrate; bracts lanceolate, mostly entire, often purplish-tinged; calyx softly pubescent, often purplish; tube obpyramidal, about 4 mm. long; lobes lanceolate, gradually setose-acuminate, almost as long as the tube; corolla about 12 mm. long, rose-colored, glabrous.

This species is related to *Stachys palustris* and *S. scopulorum.*

From the former it differs in the more gradually acuminate and almost erect calyx-teeth, and from the latter in the short appressed pubescence of the leaves, and the usually glabrous lower part of the stem.

IDAHO: Low meadow, Blue Creek, alt. 700 m., Coeur d'Alene Mountains, July 20, 1895, *John B. Leiberg 1328* (type, in U. S. Nat. Herb. *no. 250,811*); Valley of Coeur d'Alene River, Kootenai Co., July 13, 1892, *Sandberg, MacDougal, & Heller 639*, in part.

Stachys ampla sp. nov.

Perennial, with a rootstock; stem 5–7 dm. high, softly hirsute and more or less viscid, especially above; leaves ovate to lanceolate, 5–10 cm. long, sessile or nearly so, rounded or subcordate at the base, acute at the apex crenate-serrate, softly pubescent on both sides and more or less glandular-granuliferous; spike interrupted, very leafy; calyx soft-pubescent and glandular, about 9 mm. long; lobes lance-subulate, spinulose-tipped; corolla rose-colored or pink, about 15 mm. long, somewhat puberulent without; lower lip very broad; lateral lobes half as broad and three fourths as long as the middle one.

This species is related to *S. scopulorum* and *S. teucriformis* but differs from both in the larger corolla, the broader lower lip, and the unusually large lateral lobes of the lip.

SOUTH DAKOTA: Custer, Black Hills, Aug. 20, 1892, *Rydberg 1208* (type, in herb. N. Y. Bot. Gard.).

Audibertiella argentea sp. nov.

A low shrub; branches cinereous-puberulent; leaves petioled, 1–2 cm. long; blades rounded, obovate-spatulate, rounded or retuse at the apex, scurfy-cinereous, at first silvery white; bracts broadly obovate, about 1 cm. long, membranous, strongly veined, puberulent and ciliate; corolla blue, about 1 cm. long; lower lip only slightly longer than the upper one, its lobes short and rounded; longer filaments about 12 mm. long, anther-bearing connective 2.5–3 mm. long, sterile connective lacking.

Dr. E. L. Greene* separated *Audibertia polystachya* Benth. from the rest of the genus, as understood by Bentham and Gray, and proposed the name *Ramona* for this species. The other species he reduced to *Salvia*. Briquet, ignorant of Greene's work, discovered (as Greene had done) that *Audibertia* could not hold for this genus, as the name had been applied two years earlier to a section of *Mentha*, proposed the name *Audibertiella*,* and renamed all the known species under this genus. Later he discovered that Greene had proposed the name *Ramona* for one of the species. He, however, did not agree with Greene that the genus, with that species excepted, should be merged in *Salvia*. He therefore restored the genus as understood by Bentham and Gray, adopted Greene's name, and renamed the species under *Ramona*. The writer agrees with Greene in keeping *Ramona* as a distinct genus for *Audibertia polystachya*, but agrees with Briquet that none of the species should be merged into *Salvia*. It is therefore necessary to restore *Audibertiella* Briq. As this name was a substitute for the invalid *Audibertia*, the type species of the latter becomes the type of the former. The type is therefore *Audibertia incana* Benth. The type of *Ramona* was *Audibertia polystachya*. *Audibertia grandiflora* may represent a third genus.

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* Pittonia **2**: 235.

The present species is a close relative to *A. incana* and has been confused with it. It differs in the broad rounded obovate-spatulate leaves, the smaller flowers and the comparatively shorter lower lip of the corolla. In *A. incana* the leaves are oblong-spatulate, often 3–4 cm. long, the corolla almost 1.5 cm. long, and its lower lip about half longer than the upper one. *A. incana* ranges from Washington to Idaho and Oregon. The range of *A. argentea* is much more southerly.

ARIZONA: Mokia Pass, 1877, *Palmer 395* (type, in herb. Columbia Univ.); 1876, *Palmer 358*.

UTAH: St. George, 1874, *Parry 159*; 1872, *Bishop*.

NEVADA: Monitor Valley, 1868, *S. Watson 829*; Kernan, Meadow Valley Wash, April 29, 1902, *Goodding 655*; Palisade, June 14, 1882, *M. E. Jones 4035*; Miller Mountain, 1883, *Shockley*; Charleston Mountain, 1898, *Purpus 6072*.

CALIFORNIA: Surprise Cañon, Panamint Mountains, *Coville & Funston 601*; Panamint Cañon, May 4, 1897, *M. E. Jones*; Providence Mountains, May, 1902, *Brandegee*; Mojave Desert, May 30, 1901, *Parish 4935*.

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* Bull. Herb. Boiss. **2**: 73.

Hedeoma longiflora sp. nov.

Perennial, with a slender taproot; stems branched at the base, decumbent or ascending, finely puberulent; leaves spreading, linear-lanceolate, lanceolate or oblong, 1–2 cm. long, grayish-puberulent, subsessile; calyx 7–8 mm. long, strongly ribbed, puberulent, somewhat saccate below; teeth subulate, the lower 2 mm., the upper 1 mm. long; corolla about 12 mm. long, puberulent, with an ample limb.

This has been confused with *Hedeoma Drummondii*, but differs in the broader leaves, which are divergent, and in the calyx, which is distinctly saccate. *H. Drummondii* differs from the related species in the narrow, ascending or suberect leaves and the narrow calyx, scarcely at all saccate. *H. longiflora* has the long corolla of *H. Drummondii* and is distinguished thereby from *H. sancta*, *H. thymoides*, and *H. ovata*, which have all been included in *H. Drummondii.* It grows on cliffs and in cañons of the Great Plains region.

NEBRASKA: Cliffs of cañons of Banner Co., 1890, *Rydberg X297* (type, in herb. N. Y. Bot. Gard.); Court House Rock, 1891, *Rydberg 297.*

SOUTH DAKOTA: Custer, June 16, 1892, *Rydberg 941;* Rapid Creek, 1891, *T. A. Williams.*

KANSAS: Wet rocks, Stanton Co., Aug. 5, 1895, *Hitchcock 402.*

Madronella sessilifolia sp. nov.

Perennial, with a short caudex; stems stout, about 3 dm. high, finely puberulent, densely so above; leaves sessile or nearly so, ovate or lanceolate, entire, obtuse, rather pale, finely puberulent or in age glabrous; bracts oval, 10–12 mm. long, puberulent on the back, ciliate on the margins; calyx 8–9 mm. long, pilose, striate; lobes lanceolate, about 1 mm. long; corolla 12–13 mm. long, pubescent.

The type was determined as *Monardella odoratissima*, but it differs from that species in the pale foliage, the shorter and finer pubescence, the broader leaves, and the less distinctly ciliate calyx-lobes.

UTAH: St. George, 1877, *Palmer 393* (type, in herb. N. Y. Bot. Gard.).

Madronella oblongifolia sp. nov.

Perennial, suffruticose at the base; stems 1–3 dm. high, grayish puberulent or in age glabrate; leaf-blades oblong, 1–3 cm. long, minutely puberulent, or in age glabrate, entire, obtuse, usually with distinct, but short, slender petioles; bracts pale or tinged with rose, finely puberulent, ciliate on the margins, oval, 9–12 mm. long; calyx about 1 cm. long, pilose; its teeth lanceolate, and strongly ciliate; corolla white to rose-colored, 12–14 mm. long, puberulent.

This has been confused with *M. odoratissima*, but differs in the shorter pubescence, which is sometimes wholly lacking on the older leaves, the merely puberulent instead of pilose bracts, the more distinctly petioled leaves, and more suffruticose habit. It grows on mountain sides at an altitude of 1500–3000 m.

UTAH: Mount Nebo, 1905, *Rydberg & Carlton 7706* (type, in herb. N. Y. Bot. Gard.), *7757* and *7700;* mountains north of Bullion Creek, near Marysvale, *7178;* American Fork, 1885, *Leonard 178;* Logan, Aug. 9, 1895, *Shear 3164;* same locality and date, *Rydberg;* Alta, July 30, 1879, *M. E. Jones 1109;* Central Utah, 1873, *Parry 75.*

Mentha glabrior (Hook.) Rydb. sp. nov.

Mentha canadensis glabrata Benth. Lab. 181. 1833. Not *M. glabrata* Vahl. 1794.

Mentha canadensis glabrior Hook. Fl. Bor.-Am. **2**: 111. 1838.

Mentha canadensis borealis Piper, Contr. U. S. Nat. Herb. **11**: 492, in part. 1906. Not *M. borealis* Michx. 1803.

This differs from *Mentha canadensis* in the almost glabrous leaves and stem, and much shorter pubescence on the calyx. Recently several botanists have included *M. Penardi* (*M. arvensis Penardi* Briq.) in *M. canadensis glabrata* or *M. arvensis glabrata*, but I think they are distinct. In *M. Penardi* the leaves have much shorter petioles, nearly always shorter than the flower-clusters, the stem is more hairy and the calyx-teeth are lanceolate and acute, much longer than broad. *M. glabrior* has the abruptly acuminate calyx-lobes of *M. canadensis* but they are not so short. This species has been taken as *M. borealis* Michx., and even Bentham cited the latter as a synonym, but by reading Michaux's description, one can easily see that it without any doubt refers to the true *M. canadensis*. *M. canadensis* is not found in the Rocky Mountain region, and *M. glabrior* is very rare. The common plant of the Rockies is *M. Penardi* and that of the Pacific slope is *M. lanata*, discussed below.

Mentha lanata (Piper) Rydb. sp. nov.

Mentha arvensis lanata Piper, Bull. Torrey Club **29**: 223. 1902.

Mentha canadensis lanata Piper, Contr. U. S. Nat. Herb. **11**: 492. 1906.

I think that this deserves specific rank, differing not only in the amount but also in the kind of pubescence and in the shape of the calyx lobes. Sometimes the leaves are very densely villous, almost white. Its range extends from British Columbia to Idaho and California. The specimens from Maine accredited to this by Robinson and Fernald * probably represent unusually hairy specimens of *M. canadensis* and not this.

Mentha occidentalis sp. nov.

Perennial, with a rootstock; stem 3–6 dm. high, with short crisp pubescence, at least on the angles above; petioles 5–10 mm. long; leaf-blades ovate or ovate-lanceolate, short-acuminate, strongly serrate, 4–8 cm. long, minutely pubescent on both sides or in age glabrate; bracts linear-lanceolate, 1 cm. long or more, usually exceeding the flowers; calyx about 3 mm. long, pilose, teeth lanceolate, acute or acuminate, longer than broad; corolla white or pink, 5–6 mm. long; its lobes oblong, obtuse.

This has been confused with *Mentha canadensis* and *M. glabrata*, but differs from all the species of this group in the long linear-lanceolate bracts, longer than the flower clusters, and the larger corollas. Otherwise it comes nearest *M. Penardi*.

IDAHO: Forest, Nez Perces County, 1896, *A. A. & E. Gertrude Heller 3486* (type, in herb. Columbia Univ.).

WASHINGTON: 1889, *Vasey 463*; Chehalis River, 1897, *Lamb 1235*.

MONTANA: Jocko River, Aug. 27, 1897, *Elrod and assistants 213*.

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* Gray's New Manual 711. 1908.

Scrophularia serrata sp. nov.

Perennial; stem 1–2 m. high, angled, sparingly puberulent or glabrous, slightly glandular in the inflorescence; leaf-blades ovate or cordate, 5–15 cm. long, regularly serrate with the teeth directed forward, acute or short-acuminate, minutely glandular-puberulent on both sides; bracts rather conspicuous, linear-lanceolate, the lowest 2–3 cm. long; calyx-tube hemispheric, glabrous or nearly so, 2 mm. long; lobes rounded, 2 mm. long; corolla-tube short, 6-7 mm. long, nearly 5 mm. thick; upper lip 4–5 mm. long; sterile stamen obovate-spatulate, purple.

This species is related to *Scrophularia marilandica* and *S. neglecta*. From both it differs in the stout, strongly ascending, instead of more or less spreading branches of the inflorescence; from the former in the larger corolla (about twice as large) and from the latter in the shorter corolla-tube, scarcely twice as long as the calyx, and the finely glandular-puberulent, instead of densely pubescent lower leaf-surfaces. In *S. neglecta* the corolla-tube is about three times as long as the calyx. *S. occidentalis*, the common Rocky Mountain species, has doubly toothed or incised leaves with spreading teeth and a reniform greenish sterile stamen.

IDAHO: Wet places, Granite, N. Idaho, July, 1887, *J. H. Sandberg* (type, in herb. N. Y. Bot. Gard.).

Pentstemon subglaber Rydb. nom. nov.

Pentstemon glaber utahensis S. Wats. Bot. King's Exp. 217. 1871.

Pentstemon utahensis A. Nels. Bull. Torrey Club **26**: 242. 1899. Not *P. utahensis* Eastw. 1893.

PENTSTEMON ALPINUS [A] Torr. Ann. Lyc. N. Y. **1**: 35. 1823

Pentstemon oreophilus Rydb. Bull. Torrey Club **31**: 642. 1905.

A reëxamination of the type of *Pentstemon alpinus* has persuaded me that it is the same as my *P. oreophilus* and not as I thought, the same as *P. riparius* A. Nelson. The latter should therefore be restored.

Pentstemon auricomus A. Nels. sp. nov.

Pentstemon Jamesii A. Nelson, Bull. Torrey Club **25**: 547. 1898. Not *P. Jamesii* Benth. 1846.

I had some correspondence with Professor A. Nelson in 1898, when the latter segregated *Pentstemon similis* from *P. Jamesii.* I think that I then led Professor Nelson astray. At least, I had made a rather serious mistake. Professor Nelson made the following statement in his article in the BULLETIN cited above:

"Before I began work upon these collections Dr. Rydberg had satisfied himself that his Dakota plant closely duplicated the type of *P. Jamesii* which is preserved in the Torrey Herbarium at Columbia University, and with which he has done me the favor of comparing my specimens."

A more thorough investigation of the South Dakota plant shows that the sterile stamens are but slightly bearded and of a different shape and the specimens must be referred to a form of *P. albidus.* The type of *P. Jamesii* consists of two scraps, only the tops of the plant. The bracts, the calyx, and corolla of these scraps resemble closely those of Nelson's plants from Wyoming. The basal leaves of *P. Jamesii* are, however, entirely different from those of Nelson's plant. At the time, there were no good specimens of *P. Jamesii* in the herbaria here in New York, but I have myself collected good specimens near the type locality, which was somewhere on the upper Arkansas River. These show that *P. Jamesii* is much closer to *P. similis* A. Nels., differing in the smaller corolla, the less secund inflorescence, the longer bracts and narrower basal leaves. Typical *P. Jamesii* is represented by *Rydberg & Vreeland 5637, 5636, 6610, 5635* and *5633;* also by *Baker 6* of 1901 and *Osterhout 2084* of 1900.

As the plant described by Professor Nelson at the place cited above is very distinct I adopt the name under which Professor Nelson had distributed the plant, viz., *Pentstemon auricomus,* especially as I, at least indirectly, was the cause of its being suppressed.

PENTSTEMON SUFFRUTESCENS Rydb. Bull. Torrey Club **28**: 503. 30 S 1901

P. caespitosus suffruticosus A. Gray, Syn. Fl. 2^1: 270. 1878.

P. procumbens Greene, Pl. Baker. **3**: 23. 18 N 1901.

Professor A. Nelson, in describing *Pentstemon Xylus,** expressed his opinion that the latter was the same as *P. caespitosus suffruti-*

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* Bot. Gaz. 34: 31. 1902.

cosus A. Gray. A careful reading of the original short description of Gray's variety will reveal to anyone that it cannot apply to *P. Xylus*. As *P. suffrutescens* was based exclusively on Gray's variety, it can by no means be called a *nomen nudum* as Professor Nelson is inclined to regard it. To it I refer also *P. procumbens* Greene published nearly two months later.

Pentstemon Thompsoniae (A. Gray) Rydb. sp. nov.

Pentstemon pumilus Thompsoniae A. Gray, Syn. Fl. **2**^{1}: 269. 1878.

This is a very distinct species, not related to *P. pumilus*. Dr. Gray at first * placed *Pentstemon pumilus* with *P. albidus*, *P. Jamesii*, and *P. cristatus*, *i. e.*, in a group to which it rightly belongs, notwithstanding its small size. Afterwards,† he transferred it wrongly to the *P. caespitosus* group, with which it has little in common. *P. Thompsoniae* on the contrary belongs to this group and is a close relative to *P. caespitosus*. I suspect that Dr. Gray has redescribed the true *P. pumilus* Nutt. under the name *P. miser*.‡ I have not seen the type of the latter but the description agrees well with *P. pumilus*.

Pentstemon platyphyllus sp. nov.

Pentstemon heterophyllus latifolius S. Wats. Bot. King's Exp. 222. 1871. Not *P. latifolius* Hoffmgg. 1824.

Dr. Gray in the Synoptical Flora § refers this doubtfully to *Pentstemon azureus Jaffrayanus* Gray (*P. Jaffrayanus* Hook.). The two resemble each other in leaf form and general habit, but there are differences important enough to make them distinct species. I am also inclined to think that *P. Jaffrayanus* is specifically distinct from *P. azureus*, although I have not seen any authentic specimen of the latter. The leaves in *P. Jaffrayanus* are strongly glaucous and the upper are subcordate and clasping at the base; the calyx-lobes are oval or obovate, abruptly short-acuminate or mucronate with an erect tip; the anthers are somewhat hirsutulous at the sinus as well as papillose-hispidulous on the margins; and the sterile stamen is filiform. In *P. platyphyllus* the leaves are less glaucous, never subcordate or clasping at the base; the calyx-lobes are ovate, long-acuminate, with more or less spreading tips; the anthers are merely papillose-hispidulous on the margins but otherwise without pubescence; and the sterile stamen is decidedly broadened upwards. *P. platyphyllus*, as far as the writer knows, is found in Utah only, while *P. Jaffrayanus* grows in California and Oregon. To the former belong the following specimens:

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* Proc. Am. Acad. **6**: 67. 1862.

† Syn. Fl. **2**^{1}: 269. 1878.

‡ Syn. Fl. ed. 2, **2**^{1}: 441. 1886.

§ **2**^{1}: 272. 1878.

UTAH: Cottonwood Cañon, July, 1869, *S. Watson 787;* City Creek Cañon, July 25, 1879, *M. E. Jones 1080;* also July 7, 1880; same locality, July 4, 1883, *Leonard 141*, and Aug. 9, 1884, *208;* mountains near Ogden, July, 1871, *Coulter.*

Pentstemon coccinatus sp. nov.

(?) *Pentstemon Eatonii undosus* Jones, Proc. Calif. Acad. **5**: 715. 1895.

Perennial, with a woody caudex; stem erect, 3–6 dm. high, puberulent; basal leaves petioled; blades ovate or elliptic, acute at both ends, 3–7 cm. long, densely puberulent; lower stem-leaves spatulate to elliptic; the upper ovate or ovate-lanceolate, acuminate; inflorescence lax, more or less secund; calyx about 5 mm. long, puberulent; lobes broadly ovate, abruptly short-acuminate, scarious-margined and denticulate; corolla red, about 2.5 cm. long, nearly tubular, not ventricose, slightly bilabiate, lobes short, rounded; anthers papillose on the margin, glabrous; sterile stamen glabrous, club-shaped, truncate; capsule about 1 cm. long.

This has been confused with *P. Eatonii*, but differs in the puberulent stem and leaves, the more acuminate upper leaves and sepals.

ARIZONA: Grand Cañon of the Colorado, 1898, *MacDougal 173* (type, in herb. N. Y. Bot. Gard.); Oak Creek, June 23, 1883, *Rusby;* Red Cañon Trail, June 10, 1901, *L. F. Ward.*

UTAH: Court House Wash, May, 1892, *Eastwood;* South Utah, 1877, *Palmer 372;* 1874, *Parry 149.*

Synthyris dissecta sp. nov.

Synthyris pinnatifida Rydb. Mem. N. Y. Bot. Gard. **1**: 353. 1900. Not S. Wats. 1871.

Acaulescent perennial, with a short, thick, erect rootstock; leaves 5–10 cm. long, petioled, villous-tomentose; blades oval in outline, twice or thrice pinnatifid into oblong or lanceolate divisions; scape villous-tomentose, 5–20 cm. high; spike dense or in fruit more lax; bracts and calyx densely white-villous; corolla about 6 mm. long, dark-blue or purple, or in age paler; lobes broadly obovate; stamens slightly exserted; ovary villous; fruit obovate, 6 mm. long, villous or in age glabrate.

This species is related to *Synthyris pinnatifida*, and has been mistaken for it, but it differs in the more copious pubescence, especially on the calyx and ovary (in *S. pinnatifida* these are glabrous or merely puberulent on the margins), in the larger dark corolla with obovate instead of oblong lobes, and in the larger fruit. *S. dissecta* grows at an altitude of 2000–3000 m.

MONTANA: Near Bozeman, June 11, 1900, *Chesnut & Jones 199* (type, in herb. N. Y. Bot. Gard.); Bridger Mountains, June 15, 1897, *Rydberg & Bessey 4927*; same locality, 1899, *Flaherty*, and June 26, 1899, *Blankinship*; Old Hollowtop, July 7, 1897, *Rydberg & Bessey 4926*; Beaver Head Co., June, 1888, *Tweedy 70*.

WYOMING: Headwaters, Cliff Creek, Aug. 9–18, 1900, *C. C. Curtis* (good fruit).

Thalesia Sedi (Suksd.) Rydb. comb. nov.

Aphyllon Sedi Suksd. Deuts. Bot. Monats. **18**: 155. 1900.

The three species of the Columbia River region, which have usually been included in *Thalesia uniflora*, differ from the plant of the eastern United States in their longer attenuate calyx-lobes. In all three the lobes are about twice as long as the calyx-tube and narrowly subulate from a broad base; in *T. uniflora* they are scarcely longer than the tube, lanceolate and gradually tapering from the base of the apex. *T. Sedi* differs from the other two Columbian species in the lighter-colored corolla, with narrower, oblong acutish or obtuse lobes, while *T. purpurea* Heller and *T. minuta* (see below) have dark purple corolla and broad, oval or semiorbicular lobes rounded at the apex or sometimes even retuse. It grows on species of *Sedum* and is distributed through parts of Oregon, Washington, and western Montana.

Thalesia minuta (Suksd.) Rydb. comb. nov.

Aphyllon minutum Suksd. Deuts. Bot. Monats. **18**: 155. 1900.

This resembles *Thalesia purpurea* in the color of the flower and the form of the calyx, but the corolla is much smaller, only 15–20 mm. long, more strongly curved, and less funnelform. The corolla of *T. purpurea* is 2–3 cm. long, and more open at the throat. *T. minuta* has been reported parasitic on *Lithophragma*, but may grow on other hosts. It has been collected in Oregon, Washington, Montana, and British Columbia.

Thalesia lutea (Parry) Rydb. comb. nov.

Phelipaea lutea Parry, Am. Nat. **8**: 214. 1874.

Aphyllon fasciculatum luteum A. Gray, Syn. Fl. **2**^{1}: 312. 1878.

This differs from *Thalesia fasciculata* not only in the sulphur-yellow corolla, but also in the acutish corolla-lobes and in the acute rather than acuminate calyx-lobes. It is parasitic on grasses instead of on composites, etc.

MYZORRHIZA Philippi, Linnaea **29**: 36. 1857

Aphyllon § *Nothaphyllon* A. Gray, Bot. Calif. **1**: 584. 1876.

Orobanche § *Myzorrhiza* G. Beck, Bibl. Bot. **4**: 78. 1890.

Following Beck von Mannagetta, many botanists in this country have reduced Gray's section *Nothaphyllon* of *Aphyllon* to *Orobanche*, while they have kept *Thalesia* distinct. Both, as well as a part of *Boschniakia*, were included in *Orobanche* by Beck. The editors of Gray's New Manual evidently took the genus *Orobanche* in the same sense as Beck. In contrasting *Conopholis* and *Orobanche* in the generic key, they give as characters for the former: "Calyx deeply cleft in front"; and for the latter: "Calyx 5-cleft." On the following page, however, they give as characters of *Orobanche minor:* "Calyx cleft before and behind almost or quite to the base," and for *O. ramosa:* "Calyx 4-lobed." *O. minor* is the only typical *Orobanche* found in this country, and this does not agree with the characterization of the genus, as given in the New Manual. Evidently the editors had Gray's genus *Aphyllon* in mind when the key was made.*

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* Another inaccuracy in the treatment of *Orobanche* in the New Manual may be pointed out: *Orobanche purpurea* and *O. ramosa* are there characterized as having "each flower with 3 bracts (1 large and 2 small) at the base of the calyx," *O. minor* and *O. ludoviciana* as having "each flower with 1 or 2 bracts at the base of the calyx," and *O. uniflora* and *O. fasciculata* as being "without bracts." The characters

The typical *Orobanche* has the calyx characteristic of, for instance, *Castilleja* in Scrophulariaceae, *i. e.*, the calyx is deeply cleft in front and behind, with the lateral divisions entire or 2-cleft. None of our native American plants has this structure. They have all (except those included in *Boschniakia* by Gray) an almost equally 5-toothed calyx. There is a group of Old World plants, of which *Orobanche purpurea* and *O. ramosa* are introduced into this country, which have a 4-toothed or only occasionally 5-toothed calyx, but in that case the upper tooth is much smaller. In Gray's New Manual the former is described as having a "5-lobed" calyx. This is only occasionally the case. These species constitute the genus *Kopsia* Dum. or *Phelipaea* Nees (not Desf.). The writer thinks that the five sections of Beck's monograph should be regarded as genera. *Myzorrhiza* Philippi is the only available name for *Aphyllon* § *Nothaphyllon* Gray. This genus differs from *Thalesia* in habit and in the arrangement of the placentae, from *Orobanche* in the regularly 5-toothed instead of 2-cleft calyx, and from both in the presence of bractlets. The type of the genus is

MYZORRHIZA CHILENSIS Philippi, Linnaea **29**: 36. 1857
Orobanche chilensis G. Beck, Bibl. Bot. **4**: 82. 1890.

This is closely related to our most common North American species:

MYZORRHIZA LUDOVICIANA (Nutt.) Rydb.; Small, Fl. SE. U. S. 1093. 1903
Orobanche ludoviciana Nutt. Gen. **2**: 58. 1818.
Phelipaea ludoviciana Walp. Rep. **3**: 461. 1844.
Aphyllon ludovicianum A. Gray, Bot. Calif. **1**: 585. 1876.
? *Aphyllon arenosum* Suksd. Allg. Bot. Zeits. **12**: 27. 1906.

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given for the two first are correct; there are three scales under the flower, one bract and two lateral bractlets; *Orobanche minor* has one bract and no bractlets, while *O. ludoviciana* has 1 or 2 bractlets under the flower. It has exactly the same arrangement as *O. purpurea* and *O. ramosa*, except that one of the bractlets is sometimes lacking and the bract is usually some distance below the calyx. *Orobanche uniflora* and *O. fasciculata* are not without bracts. They are without bractlets, but the bract is found at the base of the longer pedicel. They are like *O. minor* (a typical *Orobanche*) in having no bractlets, but differ in the 5-toothed instead of 2-cleft calyx. *O. ludoviciana* has bractlets and should have been associated with the two first species, if the presence or absence of bractlets was taken as the dividing character. In all the species the bracts are present although situated at different distances from the calyx, depending upon the length of the pedicels.

MYZORRHIZA MULTIFLORA (Nutt.) Rydb. Bull. Torrey Club **33**: 151. 1906

Orobanche multiflora Nutt. Jour. Acad. Nat. Sci. Phila. II. **1**: 179. 1848.

Phelipaea erianthera Engelm.; A. Gray, Proc. Am. Acad. **7**: 372. 1867.

Aphyllon multiflorum A. Gray, Bot. Calif. **1**: 585. 1876.

Myzorrhiza Cooperi (A. Gray) Rydb. comb. nov.

Aphyllon Cooperi A. Gray, Proc. Am. Acad. **20**: 307. 1885.

Orobanche ludoviciana Cooperi G. Beck, Bibl. Bot. **4**: 81. 1890.

Myzorrhiza tuberosa (A. Gray) Rydb. comb. nov.

Phelipaea tuberosa A. Gray, Proc. Am. Acad. **7**: 371. 1867.

Aphyllon tuberosum A. Gray, Bot. Calif. **1**: 585. 1876.

Orobanche bulbosa G. Beck, Bibl. Bot. **4**: 83. 1890.

Myzorrhiza pinorum (Geyer) Rydb. comb. nov.

Orobanche pinorum Geyer; Hook. Kew Jour. Bot. **3**: 297. 1851.

Phelipaea pinetorum A. Gray, Proc. Am. Acad. **7**: 371. 1867.

Aphyllon pinetorum A. Gray, Bot. Calif. **1**: 585. 1876.

Myzorrhiza Grayana (G. Beck) Rydb. comb. nov.

Orobanche comosa Hook. Fl. Bor.-Am. **2**: 92. 1838. Not *O. comosa* Wallroth. 1822.

Anoplanthus comosus Walp. Rep. **3**: 480. 1844.

Phelipaea comosa A. Gray, Pac. R. Rep. **4**: 118. 1857.

Aphyllon comosum A. Gray, Bot. Calif. **1**: 584. 1876.

Phelipaea carnosa [error] T. & G.; Coop. & Suckl. Nat. Hist. Wash. 50. 1859.

Orobanche Grayana G. Beck, Bibl. Bot. **4**: 79. 1890.

Myzorrhiza californica (Cham. & Schlecht.) Rydb. comb. nov.

Orobanche californica Cham. & Schlecht. Linnaea **3**: 134. 1828.

Phelipaea californica G. Don, Gen. Syst. **4**: 632. 1838.

Aphyllon californicum A. Gray, Bot. Calif. **1**: 584. 1876.

Myzorrhiza violacea (Eastw.) Rydb. comb. nov.

Aphyllon violaceum Eastw. Zoe **5**: 85. 1900.

Myzorrhiza xanthochroa (Nels. & Cockerell) Rydb. comb. nov.

Orobanche xanthochroa Nels. & Cockerell, Bot. Gaz. **37**: 278. 1904.

Myzorrhiza corymbosa sp. nov.

Stem 5–10 cm. high, corymbosely branched, glandular-puberulent; scales about 1 cm. long, lance-ovate, acute; bracts linear, about 1 cm. long; pedicels 5–10 mm. long; bractlets linear-subulate, half as long as the calyx; calyx-tube obconic, glandular-puberulent, 4 mm. long; lobes lance-subulate, about 1 cm. long; corolla dark purple, about 2.5 cm. long, tube 4–5 mm. wide; upper lip 7–8 mm. long, cleft about one third its length into ovate, obtuse or sometimes retuse lobes; lower lip cleft to the base into three lanceolate acutish divisions; anthers woolly.

This species has been confused with *M. californica* and *M. ludoviciana*, but is evidently most nearly related to *M. Grayana* (*Orobanche comosa* Hook.). In Hooker's Flora, the latter is described and figured as having emarginate corolla lobes. I doubt if that is a constant character. There is a fragment of Hooker's type in the Torrey herbarium; some of the lobes are evidently so, but in others this character is rather obscure. Good specimens, collected by Dr. Cooper on the Stevens' Expedition and also preserved in the Torrey herbarium, and a colored drawing, made for the report of the Wilkes' Expedition but never published, illustrate a plant with the lobes of the lower lip lanceolate, acute and entire at the apex. These and the specimen received from Hooker agree otherwise wholly in habit, size, structure, and color of the corolla. Whether the notching of the lower lobes is a specific character or not, may be decided by further field study. It is evident that the specimens cited here below are distinct enough from both. Hooker's and Cooper's plants have a corolla fully 3 cm. long, light purple and of a thinner texture, the lips are 12–15 mm. long, *i. e.*, about twice as long as in the plant here described, the upper lip is cleft to about the middle and the lobes of the lower lip are relatively narrower. The corolla of *M. corymbosa* resembles more in form, size, texture, and color that of *M. ludoviciana*, although the upper lip is less deeply 2-cleft. Occasionally one finds stunted specimens of *M. ludoviciana*, which in habit resemble this, but they can easily be recognized by the shorter calyx-lobes and the glabrous anthers. The type of *M. corymbosa* was labeled *Aphyllon californicum*, but *M. californica* is a much larger plant in every respect, and its anthers are glabrous or nearly so.

IDAHO: Reynold's Creek, July 2, 1892, *Isabel Mulford* (type, in herb. Columbia Univ.).

WYOMING: Jackson's Hole, July 30, 1901, *Merrill & Wilcox 1177.*

MONTANA: Mountains near Indian Creek, July 22, 1897, *Rydberg & Bessey 4988.*

Valeriana pubicarpa sp. nov.

Perennial, with a rootstock; stem 2–4 dm. high, finely puberulent, not bearded at the nodes; basal leaves spatulate or oblanceolate, 2–6 cm. long, thin, glabrous or nearly so; stem-leaves 2-4 pairs, the lowest pair similar to the basal ones, the rest 3–5-foliolate or the uppermost minute and simple; leaflets oblong or lanceolate, rarely elliptic, 2–5 cm. long, entire; inflorescence short and dense, corymbiform or subcapitate; flowers mostly perfect; corolla funnelform, 4–6 mm. long, more or less pubescent; limb about 4 mm. wide; fruit finely pilose, 5 mm. long, 2 mm. wide.

This species has the habit of *Valeriana occidentalis* and *V. micrantha*, but the corolla of *V. Scouleri.* From the first, it differs in the longer corolla and the pubescent fruit; from the second, in a corolla twice as long and a denser inflorescence; from the last, in the narrower entire leaflets, and the pubescent fruit; and from all in the puberulent stem, which lacks the beard at the nodes and on the sheaths. It grows in the mountains at an altitude of 2,000–3,000 m.

UTAH: Mount Nebo, Aug. 15, 1905, *Rydberg & Carlton 7717* (type, in herb. N. Y. Bot. Gard.); also Big Cottonwood Cañon, June 28, *6374* and *6517*; Provo, June 16, 1902, *Goodding 1148.*

IDAHO: Ketchum, July 23, 1892, *Miss Mulford.*

MONTANA: Lima, June 29, 1895, *Rydberg 2794*; also *C. L. Shear 3389.*

Valeriana puberulenta sp. nov.

Perennial, with a thick rootstock; stem finely puberulent, not bearded at the nodes, 1.5–3 dm. high; basal leaves spatulate, 2–5 cm. long; stem-leaves 1–3 pairs, usually 3-foliolate; terminal leaflet elliptic or oblong, or in the uppermost reduced pair lanceolate, 1–3 cm. long, the lateral ones oblong or lanceolate, about half as long; plant usually polygamo-dioecious; inflorescence of the essentially pistillate plant dense-corymbiform, that of the somewhat smaller essentially staminate plant subcapitate; corolla funnelform, 4–5 mm. long; limb 2.5–3 mm. wide; fruit glabrous, nearly 5 mm. long and 2 mm. wide.

This species has the pubescence of the preceding, but differs in the smaller stature, the smaller flowers, fewer and smaller leaves, glabrous fruit and a stronger tendency to be polygamo-dioecious. It grows in the mountains of Utah, at an altitude of 2,000–3,000 m.

UTAH: Mountains north of Bullion Creek, near Marysvale, July 23, 1905, *Rydberg & Carlton 7065* (type, in herb. N. Y. Bot. Gard.); also Big Cottonwood Cañon, June 28, *6390*, *6371*, and *6532*; Mount Barette, July 26, *7238*; near Alta, July 10, 1883, *Leonard 177*; Central Utah, 1875, *Parry 36*; Wahsatch Mountains, Aug., 1869, *S. Watson 488*, in part.

CORRECTION

Mertensia cana Rydb. nom. nov.

Mertensia canescens Rydb. Bull. Torrey Club **31**: 640. 1904. Not *Mertensia canescens* Kaulf. 1824.

Professor T. D. A. Cockerell has called my attention to the fact that my *Mertensia canescens* is antedated by *M. canescens* Kaulf., a fern.

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